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| <b>PAYLOAD HAZARD REPORT</b>                                                                                                                                                                                                        |                                        | a. NO: GHR-AMS02-017                                                                                        |
| b. PAYLOAD: Alpha Magnetic Spectrometer-02 (AMS-02) GSE                                                                                                                                                                             |                                        | c. PHASE: II                                                                                                |
| d. SUBSYSTEM:<br>Tools                                                                                                                                                                                                              | e. HAZARD GROUP:<br>Human Factors      | f. DATE:<br>May 2008                                                                                        |
| g. HAZARD TITLE:<br>Injury/Damage from Hand Tools or Loose Hardware                                                                                                                                                                 |                                        | i. HAZARD CATEGORY<br><input checked="" type="checkbox"/> CATASTROPHIC<br><input type="checkbox"/> CRITICAL |
| h. APPLICABLE SAFETY REQUIREMENTS:<br>KHB 1700.7C, Section 4.1.6.; KHB 5310.1, General Operating Procedure 5-3.                                                                                                                     |                                        |                                                                                                             |
| i. DESCRIPTION OF HAZARD:<br><br>Personnel injury or hardware damage due to unsecured or unaccounted for hand tools or loose hardware.                                                                                              |                                        |                                                                                                             |
| k. HAZARD CAUSES:<br>1. Unsecured tools used above personnel or sensitive equipment.<br>2. Unaccounted for tools left in flight hardware, GSE, or payload bay.<br>3. Unaccounted for parts/components.<br>4. Tip over of GSE racks. |                                        |                                                                                                             |
| l. HAZARD CONTROLS:<br><br>(See continuation sheet)                                                                                                                                                                                 |                                        |                                                                                                             |
| m. SAFETY VERIFICATION METHODS:<br><br>(See continuation sheet)                                                                                                                                                                     |                                        |                                                                                                             |
| n. STATUS OF VERIFICATION:<br><br>(See continuation sheet)                                                                                                                                                                          |                                        |                                                                                                             |
| o. APPROVAL                                                                                                                                                                                                                         | PAYLOAD ORGANIZATION                   | SSP/ISS                                                                                                     |
| PHASE I                                                                                                                                                                                                                             |                                        |                                                                                                             |
| PHASE II                                                                                                                                                                                                                            | <i>[Signature]</i> TREV MARTIN 10/3/08 | <i>[Signature]</i> 10/3/08                                                                                  |
| PHASE III                                                                                                                                                                                                                           |                                        |                                                                                                             |

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| <b>PAYLOAD HAZARD REPORT CONTINUATION SHEET</b>                                                         |  | a. NO:   | GHR AMS02-07 |
| b. PAYLOAD: Alpha Magnetic Spectrometer-02 (AMS-02) GSE                                                 |  | c. Phase | II           |
| k. HAZARD CAUSES:                                                                                       |  |          |              |
| 1. Unsecured tools used above personnel or sensitive equipment.                                         |  |          |              |
| l. HAZARD CONTROLS:                                                                                     |  |          |              |
| 1.1 Temporary restraints will be used to preclude tools from falling on personnel or critical hardware. |  |          |              |
| 1.2 COPV's will be protected against tool damage during fixed ground operations.                        |  |          |              |
| 1.3 Only secured tools will be used in proximity of COPV's when protective shielding is not in place.   |  |          |              |
| 1.4 Personnel will be trained to secure tools when they are being used above people or equipment.       |  |          |              |
| m. SAFETY VERIFICATION METHODS:                                                                         |  |          |              |
| 1.1.1 Review of tool control plan.                                                                      |  |          |              |
| 1.2.1 Review of COPV plan.                                                                              |  |          |              |
| 1.3.1 Review of tool control plan.                                                                      |  |          |              |
| 1.4.1 Certification of personnel.                                                                       |  |          |              |
| n. STATUS OF VERIFICATION:                                                                              |  |          |              |
| 1.1.1. Open                                                                                             |  |          |              |
| 1.2.1 Open                                                                                              |  |          |              |
| 1.3.1 Open                                                                                              |  |          |              |
| 1.4.1 Open                                                                                              |  |          |              |

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| <b>PAYLOAD HAZARD REPORT CONTINUATION SHEET</b>                        |  | a. NO: GHR AMS02-017 |
| b. PAYLOAD: Alpha Magnetic Spectrometer-02 (AMS-02) GSE                |  | c. Phase II          |
| k. HAZARD CAUSES:                                                      |  |                      |
| 2. Unaccounted for tools left in flight hardware, GSE, or payload bay. |  |                      |
| l. HAZARD CONTROLS:                                                    |  |                      |
| 2.1 Personnel training in AMS-02 tool control plan.                    |  |                      |
| m. SAFETY VERIFICATION METHODS:                                        |  |                      |
| 2.1.1 Verification of training.                                        |  |                      |
| n. STATUS OF VERIFICATION:                                             |  |                      |
| 2.1.1 Open                                                             |  |                      |

**PAYLOAD HAZARD REPORT CONTINUATION SHEET**

a. NO: GHR AMS02-017

b. PAYLOAD: Alpha Magnetic Spectrometer-02 (AMS-02) GSE

c. Phase II

## k. HAZARD CAUSES:

3. Unaccounted for parts/components.

## l. HAZARD CONTROLS:

3.1 Personnel training to account for parts/components.

## m. SAFETY VERIFICATION METHODS:

3.1.1 Verification of training.

## n. STATUS OF VERIFICATION:

3.1.1 Open

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**PAYLOAD HAZARD REPORT CONTINUATION SHEET**

a. NO: GHR AMS02-017

b. PAYLOAD: Alpha Magnetic Spectrometer-02 (AMS-02) GSE

c. PHASE: II

## k. HAZARD CAUSES:

4. Tip over of movable GSE.

## l. HAZARD CONTROLS:

4.1 Racks/movable items will be loaded to ensure low center of gravity.

4.2 Personnel will be trained to properly handle GSE racks.

## m. SAFETY VERIFICATION METHODS:

4.1.1 Review of rack loading procedures.

4.1.2 Tip Over Analysis of all movable items, including items to be moved in the PCR (7 degree incline and expanded metal flooring).

4.2.1 Personnel training in loading racks.

## n. STATUS OF VERIFICATION:

4.1.1 Open

4.1.2 Open

4.2.1 Open

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